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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,490	09/08/2003	E. Scott Hagermoser	59004US002	2018
32692 7590 09/25/2007 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER MOON, SEOKYUN	
			ART UNIT 2629	PAPER NUMBER
			NOTIFICATION DATE 09/25/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary

Application No.

10/658,490

Applicant(s)

HAGERMOSER ET AL.

Examiner

Seokyun Moon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The Applicants' arguments filed on June 22, 2007 have been fully considered.

In the arguments, the Applicants pointed out that the combination of the prior arts of record, i.e. Gillespie et al. (US 7,109,978) and Pryor (US 7,084,859), is not proper since Pryor teaches away from combination with Gillespie [pg 9 line 21 – page 10 line 28]. Specifically, the Applicants cited Pryor's statement, "*Other touch screen types may also be advantageously slit or serrated or otherwise induced to break or disintegrate as well, but many will not work properly in this mode due to disruption of acoustic or capacitive fields for example*", as a support for the Applicants' arguments regarding the combination of the prior arts [pg 10 lines 2-5 and lines 17-20].

Examiner respectfully disagrees.

Even though Pryor discloses that many of other touch screen types will not work properly in the mode due to disruption of acoustic or capacitive fields, Pryor does not specifically indicate how the acoustic or capacitive fields are disrupted. In other words, there is no specific evidence or explanation in Pryor precluding the use of the specific type of the capacitive touch sensor of Gillespie in the steering wheel. As best understood by the Examiner, Pryor merely discloses that the projection type of touch screen is preferred for the use in the steering wheel, but does not indicate that other types of touch screen cannot be used in the steering wheel. Furthermore, if the Applicants' interpretation of Pryor's statement, i.e. any capacitive touch screen would not work properly in the steering wheel, is true, then the invention in the current Application, wouldn't work, neither. Accordingly, the Examiner respectfully submits that the Applicants' arguments regarding the combination of the prior arts are not persuasive.

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The Applicants pointed out, *“If touch sensor array 22 of Gillespie were to be placed between an airbag and an airbag cover as required by Neuman, then insulating layer 36 would no longer accessible or touchable by an occupant of the vehicle”* [pg 11 lines 6-9].

The Examiner respectfully disagrees.

In the combination of Gillespie, Pryor, and Neuman, the insulating layer 36 is the airbag cover. Since the front panel, i.e. the insulating layer 36, must be touchable by the user, it would be obvious to put the insulating layer as the front surface of the steering wheel, which eventually covers the airbag.

The Applicants pointed out, *“Further, it appears that all embodiments of the screen displays in Pryor include some form of image projector 110, layer 219, camera 205, etc. The screen displays in Pryor are viewing screen displays. Consequently, there can be no reasonable expectation of success in placing the capacitive touch sensor of Gillespie as modified by Pryor between an airbag and an airbag cover as disclosed by Neuman, since the airbag cover of Neuman would render the required image projectors of Pryor’s screen display useless”* [pg 11 line 28 – pg 12 line 3].

The Examiner respectfully disagrees.

In the combination of Gillespie, Pryor, and Neuman, the Examiner merely adopts Pryor’s idea of implementing a touch panel used for controlling electronic systems included in a vehicle, in a steering wheel of a vehicle, which includes an airbag. In other words, the specific components of the device of Pryor are not used for the combination.

The Applicants pointed out, *“The visible display screens of Pryor are incompatible with the steering wheel/horn switches of Neuman. The cited references include differences that cannot be reconciled even between the references”* [pg 13 lines 6-8].

The Examiner respectfully disagrees.

As stated above, in the combination of Gillespie, Pryor, and Neuman, the Examiner merely adopts Pryor’s idea of implementing a touch panel used for controlling electronic systems included in a

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vehicle, in a steering wheel of a vehicle, which includes an airbag. Therefore, the visible display screen of Pryor is not directly related to the combination. Furthermore, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Accordingly, the Examiner respectfully submits that the Applicants' arguments are not persuasive.

Currently, all the rejections presented in the previous Office Action are maintained.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-11, 13-23, and 27-38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillespie et al. (US 7,109,978) and Pryor (US 7,084,859), and further in view of Neuman et al. (US 5,942,815).

As to **claim 1**, Gillespie teaches a touch input device ("*capacitive touch sensor*") [abstract lines 1-3] for interacting with electronic systems ("*computing devices*") [col. 1 lines 28-33], comprising:

a surface ("*insulating layer 36*") [fig. 2d] accessible to and touchable by an user of the input device [col. 6 lines 30-32]

a capacitive touch sensor ("*capacitive touch sensor pad*") configured so that a touch to a designated area of the surface ("*insulating layer 36*") of the input device allows capacitive coupling between the touch and the touch sensor through the surface [col. 6 lines 28-32] [fig. 2d], the touch sensor

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adapted for connecting to a controller (“*arithmetic unit*”) capable of using signals generated by the capacitive coupling to interact with the electronic systems [col. 54 lines 29-37].

Gillespie does not expressly teach the touch input device to interact with electronic systems in a vehicle including an airbag.

However, Pryor teaches an idea of implementing a capacitive touch panel (“*10*”) used for controlling electronic systems included in a vehicle [abstract lines 1-6], in a steering wheel of a vehicle, which includes an airbag [fig. 1c] [col. 7 lines 26-30 and col. 17 lines 13-17].

It would have been obvious to one of ordinary skill in the art at the time of the invention to adopt Pryor’s idea of using a capacitive touch panel as an inputting means for electronics included of a vehicle, in order to provide fast response of sensing while maintaining immunity to high levels of electrical interference for a controlling means for electronics of a vehicle.

Gillespie as modified by Pryor does not expressly disclose the capacitive touch sensor to be disposed between an airbag and an airbag cover.

However, Neuman teaches a structure of placing a capacitive sensor between an airbag (“*704*”) and an airbag cover layer (“*cover layer 702*”) [fig. 7].

It would have been obvious to one of ordinary skill in the art at the time of the invention to place the capacitive touch sensor of the input device of Gillespie as modified by Pryor between an airbag and an airbag cover, as taught by Neuman, in order to allow the user of the device of Gillespie as modified by Pryor to activate the input device without activating the airbag of the steering wheel.

As to **claim 2**, Gillespie as modified by Pryor and Neuman teaches the vehicle being an automobile [Pryor: fig. 1c].

As to **claim 3**, Gillespie as modified by Pryor and Neuman teaches an airbag cover [Neuman: fig. 7].

Gillespie as modified by Pryor and Neuman does not expressly disclose the airbag cover to include a surface comprising a relief pattern making the designated area.

However, examiner takes official notice that it is well known in the art at the time of the invention to include a relief pattern making a designated area, such as writing a text “airbag” on the surface of an airbag cover.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the surface of the airbag of Gillespie as modified by Pryor and Neuman to include a relief pattern making a designated area, in order to allow the device user of the device to recognize the existence of the airbag easily.

As to **claim 4**, Gillespie as modified by Pryor and Neuman teaches the airbag cover being on a steering wheel [Pryor: fig. 1c].

As to **claims 5 and 7**, Gillespie as modified by Pryor and Neuman does not teach the steering wheel incorporating additional touch sensors or additional capacitive sensors being positioned between the airbag and the airbag cover.

However, the courts have been held that a mere duplication of parts for a multiplied effect is generally recognized as being within the level of ordinary skill in the art. St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement additional capacitive touch sensors between the airbag and the airbag cover in the steering wheel of the device of Gillespie as modified by Pryor and Neuman to provide additional access to various electrical subsystems for the occupants of a vehicle.

As to **claim 6**, Gillespie as modified by Pryor and Neuman does not teach the airbag cover being on a passenger side of the vehicle.

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However, the courts have been held that a mere change of location of parts is generally recognized as being within the level of ordinary skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include an airbag cover and an airbag on a passenger side of the vehicle of Gillespie as modified by Pryor and Neuman to provide additional safety to the passenger of the vehicle.

As to **claim 8**, Gillespie as modified by Pryor and Neuman inherently teaches the sensor being configured to safely blow apart upon deployment of the airbag since the airbag is to protect the driver of a vehicle and the unsafe destruction of the capacitive touch sensor implemented in the vehicle is not consistent with the purpose of the airbag being implemented in a vehicle.

As to **claim 9**, Gillespie teaches the capacitive touch sensor being an x-y sensor [abstract lines 1-3].

As to **claims 10 and 11**, Gillespie as modified by Pryor and Neuman does not expressly disclose the capacitive touch sensor being a quadrant segmented sensor or a scroll bar sensor.

However, since the applicants have failed to disclose that specifying the type of the capacitive touch sensor as a quadrant segmented sensor or a scroll bar sensor provides an advantage, is used for a particular purpose, or solves a state problem, it is an obvious matter of design choice to specify the type of the touch sensor as a quadrant segmented sensor, or a scroll bar sensor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any one of a x-y sensor, a quadrant segmented sensor, and a scroll bar sensor, as the capacitive touch sensor since any type of the sensor would perform equally well at processing capacitive touch-input information.

As to **claims 13-15**, Gillespie teaches the capacitive touch sensor comprising a substrate (“*substrate 24*”) [fig. 2d].

Gillespie does not expressly teach a substrate of a capacitive touch sensor to comprise paper, cloth, or plastic.

However, since the applicants have failed to disclose that specifying the substrate of the capacitive touch sensor to be comprised of any one of paper, cloth, or plastic provides an advantage, is used for a particular purpose, or solves a state problem, it is an obvious matter of design choice to specify the substrate of the capacitive touch sensor to comprise any one of paper, cloth, or plastic.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any one of nonconductive materials such as paper, cloth, and plastic for the substrate of the capacitive sensor since any one of nonconductive material would perform equally well at preventing particles being transferred or leaked from the capacitive touch sensor

As to **claim 16**, Gillespie as modified by Pryor and Neuman teaches the airbag cover providing a substrate (Gillespie: “*insulating layer 36*”) for the capacitive touch sensor [Gillespie: fig. 2d].

As to **claim 18**, Gillespie as modified by Pryor and Neuman teaches the electronic systems including an electronic display [Pryor: col. 13 line 58 – col. 14 line 41].

As to **claims 17 and 19-22**, Gillespie as modified by Pryor and Neuman does not expressly disclose the electronic systems to include radio controls, a heads up display, a heating/cooling/blower system, a navigational system, or a hands-free phone.

However, examiner takes official notice that it is well known in the art to use an electronic instrument panel in order to provide controls for car accessories such as a radio, a heads up display, a heating/cooling/blower system, a navigational system, or a hands-free phone.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the input device of Gillespie as modified by Pryor and Neuman to control various car accessories, in order to allow the occupant of the vehicle to adjust or control such car accessories easily.

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As to **claim 23**, all of the claim limitations have already been discussed with respect to the rejection of claim 1.

As to **claim 27**, Gillespie as modified by Pryor and Neuman teaches marking the designated area with a relief pattern.

Gillespie as modified by Pryor and Neuman does not expressly disclose that the relief pattern can be discerned by a user's tactile senses.

However, examiner takes official notice that it is well known in the art to have a pattern, figure, or drawing such as a horn-shaped figure on a steering wheel that can be discerned by a user's tactile senses.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Gillespie as modified by Pryor and Neuman to comprise a relief pattern on a designated area to be discerned by a user's tactile senses, in order to allow the user to find a location of the electronic components placed under the steering wheel cover, and thus to operate the electronic components easily.

As to **claim 28**, all of the claim limitations have already been discussed with respect to the rejection of claims 1 and 23 except for that the presence of the touch sensor maintains the look, feel, and functionality of the surface as if the touch sensor was excluded.

Gillespie teaches that the presence of the touch sensor maintains the look, feel, and functionality of the surface as if the touch sensor was excluded since the surface ("*insulating layer 36*") covers the whole portion of the touch sensor [fig. 2D].

As to **claims 29, 30, 32, and 33**, Gillespie as modified by Pryor and Neuman [Pryor: fig. 1c] teaches the surface being a surface of a steering wheel (Pryor: "10"), a dashboard (Pryor: "13"), a center console (Pryor: "11"), or an arm rest (Pryor: "14").

As to **claims 31 and 34**, Gillespie as modified by Pryor and Neuman does not expressly disclose the surface being a visor or a seat cover.

However, the courts have been held that a mere change of location of parts is generally recognized as being within the level of ordinary skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place the input device of Gillespie as modified by Pryor and Neuman on a visor or a seat cover of a vehicle, in order to provide multiple ways of accessing the input device to the occupants of the vehicle.

As to **claim 35**, all of the claim limitations have already been discussed with respect to the rejection of claim 27.

As to **claim 36**, Gillespie [fig. 2d] teaches the capacitive touch sensor (“*capacitive touch sensor pad*”) being an off-display capacitive touch sensor characterized by an absence of a display screen.

As to **claim 37**, Gillespie teaches the surface (“*insulating layer 36*”) [fig. 2d] being not a display screen.

As to **claim 38**, Gillespie as modified by Pryor and Neuman teaches the capacitive touch sensor comprising a projected capacitive touch sensor (the capacitive touch sensor of Gillespie is capable of detecting touches through dielectric layer) and the surface comprises an opaque surface (Gillespie: “*insulating layer 36*”) [Gillespie: fig. 2d].

4. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gillespie, Pryor, Neuman as applied to claims 1-11, 13-23, and 27-37 above, and further in view of Nagasaka (US 2004/0195031).

Gillespie as modified by Pryor, Neuman teaches a capacitive touch sensor button.

Gillespie as modified by Pryor, Neuman does not teach the capacitive touch sensor button being disposed within a spoke of the steering wheel.

However, Nagasaka [fig. 1] teaches a touch sensor button disposed within a spoke of the steering wheel.

It would have been obvious to one of ordinary skill in the art at the time of the invention to specify the device of Gillespie to be disposed within a spoke of a steering wheel, as taught by Nagasaka, in order to provide a convenient access to the inputting device.

5. **Claims 24, 25, and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillespie, Pryor, Neuman as applied to claims 1-11, 13-23, and 27-37 above, and further in view of Reighard et al. (US Pat. No. 5,423,569, herein after "Reighard").

As to **claim 26**, Gillespie as modified by Pryor and Neuman does not teach the step of disposing the capacitive touch sensor on the back surface of the airbag cover comprising disposing the touch sensor in a mold and molding the airbag cover using the mold so that the touch sensor is embedded in the back surface of the airbag cover.

However, Reighard [col. 5 lines 13-19] teaches a method of implementing an electronic component ("*force sensing resistor*") in an airbag comprising disposing an electronic component in a mold and molding the airbag cover using the mold so that the electronic component is embedded in the airbag cover.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adopt the idea of Reighard to implement an electronic component in an airbag using a mold, in the device of Gillespie as modified by Pryor and Neuman, and to specify the method of disposing the capacitive touch sensor on the airbag cover to comprise disposing the sensor in a mold and molding the airbag cover using the mold, as taught by Reighard, in order to simplify the manufacturing process for the airbag cover including the sensor by combining a molding process for the airbag cover and a process for implementing the sensor on the airbag cover into a single process.

As to **claims 24 and 25**, Gillespie as modified by Pryor and Neuman does not teach the step of disposing a capacitive touch sensor on the back surface of the airbag cover comprising transferring conductors forming the touch sensor from a decal layer to the back surface of the airbag cover or laminating the touch sensor to the back surface of the airbag cover.

However, as examiner acknowledges that the transferring or the laminating processes for disposing the sensor on the airbag cover, disclosed in claims 24 and 26 is not a required manufacturing process for the sensor implementation, but is one process out of many alternative manufacturing processes, it is an obvious matter of design choice to adopt such process in order to dispose the sensor on the airbag cover.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to adopt any one of methods such as transferring conductors forming the touch sensor from a decal layer to the back surface of the airbag cover, laminating the touch sensor to the back surface of the airbag cover, or molding the airbag cover using a mold including the sensor, since any one of the methods would perform equally well at disposing the capacitive touch sensor on the back surface of the airbag cover.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

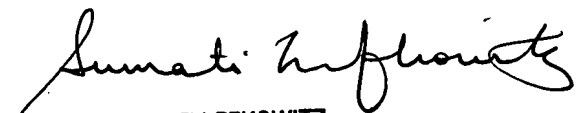
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (572) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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September 10, 2007

- s.m.



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